

## REMARKS

Applicant has carefully studied the outstanding Official Action. The present response is intended to be fully responsive to all points of rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested.

Claims 5, 7-8, 15, 19-20, 25-26, 32, 34-35, 38-43, 45-46, 49, 51, 59, 64-66, 68-74, 76 and 78 were objected to because of informalities. Applicant has amended the claims accordingly.

Claims 6, 21-22 and 27-28 stand rejected under 35 U.S.C. 112 as being indefinite or failing to particularly point out and distinctly claim the subject matter regarded as the invention.

Applicant has amended claims 6, 21-22 and 27-28 to more distinctly claim the subject matter regarded as the invention. Claim 6 was amended to depend from claim 5, thus providing the appropriate antecedent basis for the recited claim. Amended claims 21-22 recite "said visible light illuminator" thus providing the appropriate antecedent basis. Similarly, amended claims 27-28 recite "at least one visible light illuminator".

Claims 35, 39-40, 44-45, 64-65, 69-70 and 74-75 have been cancelled without prejudice.

Claims 1-13, 16-17, 19-29, 35-36, 40-41, 45-46, 49-61, 65-66, 70-71 and 75-76 stand rejected under 35 U.S.C. 102(e) as being anticipated by Rafii et al (U.S. Patent No. 6,614,422).

Applicant expresses his appreciation to Examiner Blaine T. Basom for the courtesy of an interview, which was granted to Applicants' representative, Sanford T. Colb (Reg. No. 26,856). The interview was held in the USPTO on June 3, 2004.

In the interview, claims 1 and 7 were discussed vis-à-vis the prior art of Rafii et al and Korth et al. Specifically, The Interview Summary Record states, in relevant part, "An agreement was reached that the incorporation of claim 7 with amended claim 1, to recite a two dimensional camera comprising an infrared illuminator, teaches over the prior art of record only". Applicant has accordingly amended claim 1 to include a two dimensional sensor comprising an infrared illuminator as disclosed. Support for the amendment to claim 1 is found in paragraphs 139 and 167 of the published application, *inter-alia*.

Rafii describes methods and devices for inputting commands and/or data into computer systems. Rafii states: "The invention includes a three-dimensional sensor imaging system...to capture in real-time three-dimensional data as to the placement of a user's fingers on a

substrate..." (Column 4, lines 7-33).

Korth describes a method of user command or data acquisition that allows for analysis of human hand and finger motions. Korth states: "The image acquisition system comprises a TV sensor and means for digitizing and processing signals from said TV sensor" (column 1 line 67 – column 2 line 3).

In contrast, the present invention states: "Many kinds of sensors can be employed to detect pressing any of the "virtual" keys of the embodiments shown in Figs. 3A-3E. For example, as seen in Fig. 1, the sensor may be an optical sensor 40, such as an electronic camera, CCD or position sensing device (PSD), whose field of view encompasses the "virtual" keyboard or touch pad, etc." (paragraph 139 of the published application *inter-alia*).

The present invention also states: "In accordance with a preferred embodiment of the present invention, there is provided in operative association with at least one sensor 208, at least one infra-red illuminator 212" (paragraph 167 of the published application *inter-alia*). The sensor described in the present invention is a two-dimensional sensor comprising at least one infrared illuminator, as is clear from the above quote.

Neither Rafii nor Korth show or suggest a two-dimensional sensor comprising at least one infrared illuminator as described in the present invention. However, in order to more clearly define the present invention, Applicant has amended claims 1, 36, 41, 46, 49, 66, 71 and 76 to specifically recite "at least one two dimensional sensor comprising at least one infrared illuminator". Dependent claims were amended accordingly.

The Examiner rejected claims 33 and 80 under 35 U.S.C. 102(e) as being anticipated by Dunton et al (U.S. Patent No. 6,690,357).

Dunton describes a method for inputting data to an electronic device, including projecting and image on a surface. Dunton states: "Scanning sensors 14 and 16 may be provided on extended arms... The scanning sensors 14 and 16 may, for example, be digital cameras that produce streaming video..." (column 2, lines 35-46). It is clear from the above quote that Dunton describes the use of at least two scanning sensors.

In contrast, the present invention states: "A sensor is preferably provided to sense the above described actions performed on the input zone 19" (paragraph 139 of the published application *inter-alia*). The present invention clearly provides a single sensor in order to sense

user actions.

Dunton et al does not show or suggest a single two-dimensional sensor as described in the present invention. However, in order to more clearly define the present invention, Applicant has amended claims 33 and 80 to specifically recite "a single two dimensional sensor comprising at least one infrared illuminator".

Claims 13-16, 30 and 62 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Rafii et al, in view of Kaelin et al (U.S. Patent No. 6,435,682). Claims 18, 31-32 and 63 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Rafii et al, in view of Kaelin et al in further view of Dunton et al. Claim 79 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Rafii et al, in view of Dunton et al. Claims 34, 37, 39, 42, 44, 47, 64, 67, 69, 72, 74, and 77 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Rafii et al, in view of Carau (U.S. Patent No. 6,266,048). Claims 38, 43, 48, 68, 73 and 78 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Rafii et al, in view of Carau in further view of Nicolas et al. (U.S. Patent No. 6,593,944).

As mentioned above, claims 35, 39-40, 44-45, 64-65, 69-70 and 74-75 have been cancelled without prejudice.

Kaelin et al describes an image projection system for generating an energy efficient output representative of the desired input image. The image projection system includes a light source positioning device for directing the light from a light source onto a spatial light modulator. However, Kaelin does not describe connecting the projector to a sensor in order to input information into a computer system. Therefore, one ordinarily skilled in the art would not be motivated to combine the image projection system described by Kaelin with the devices described by Rafii and/or Dunton. Even if one would be so motivated, the resulting system would still be limited to the use of three-dimensional sensors as described by Rafii, or to a plurality of sensors as described by Dunton.

Carau et al describes "an improved computer or PDA with a projected display onto a substantially flat, white surface, to create a virtual computer screen display and a projected keyboard... to create a virtual keyboard". The system taught by Carau utilizes a method of triangulation in order to project an image of a display and sense finger reflection, by using two sensor devices, as seen in Carau, Figure 3 and the description thereof. Therefore, even if one

skilled in the art would be motivated to combine the devices of Carau and Rafii, the resulting device would still be limited to the use of three-dimensional sensors as described by Rafii, or to using triangulation and a plurality of sensors as described by Carau.

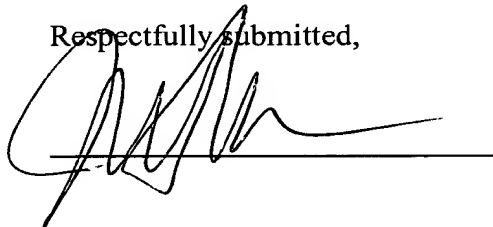
Nicolas et al describes a method and an electronic system for viewing a Web-page on a small-sized electronic display device, such as a PDA. However, the system and method described by Nicholas do not include projection of images onto a surface, or sensing position or movement on a surface. Therefore, one of ordinary skill in the art would not be motivated to combine the system and method described by Nicolas with that of Rafii and/or Carau. Even if one skilled in the art would be motivated to combine the devices, the resulting combined device would still be limited to the use of three-dimensional sensors as described by Rafii, or to using triangulation and a plurality of sensors as described by Carau.

Therefore, none of the prior art, alone or in combination shows or suggests "a single two dimensional sensor comprising at least one infrared illuminator" or "at least one two-dimensional sensor comprising at least one infrared illuminator" as recited in amended claims 1, 33, 36, 38, 41, 46, 49, 66, 71, 76 and 80.

With reference to the above discussion, independent claims 1, 33, 36, 41, 46, 49, 66, 71, 76 and 80 are deemed patentable over the prior art of record and favorable reconsideration is respectfully requested. Claims 2-32, 34, 37-38, 42-43, 47-48, 50-63, 67-68, 72-73 and 77-79 depend directly or ultimately from the above mentioned independent claims and recite additional patentable subject matter and therefore are deemed patentable.

In view of the foregoing remarks and amendments, all of the claims are deemed to be allowable. Favorable reconsideration and allowance of the application is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Julian Cohen', is written over a horizontal line.

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